Thesis/
Reports
Stratton, R.

BURNING PRESCRIPTION FOR SHRUB-SCRUB ECOSYSTEMS

By Rick Stratton

FINAL REPORT

Burning Prescription for Shrub-Scrub Ecosystems

Submitted to:

Kevin C. Ryan, Project Leader
Fire Effects, Fire Sciences Laboratory
US Forest Service, Missoula MT
Agreement Number: 00-JV-11222048-202

By:

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Systems for Environmental Management
Agreement Number: P-215

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Deliverables

1. **Assemble existing data on fuels in shrub-scrub, pocosin, and pond pine ecosystems.**

Status: COMPLETED (October 2000)

2. Determine the adequacy of existing fuels data for developing custom fuel models.

Status: COMPLETED (November 2001)

3. Assemble historical weather data for Dare County, NC and Green Swamp, NC.

Status: COMPLETED (August 2002)

4. Use fuel and weather data and fire models to develop preliminary prescriptions for burning in shrub-scrub types.

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5. Assist with and monitor prescribed fires on the Green Swamp and Dare County Bomb Range.

Status: COMPLETED (Feb. and Sept. 2001)

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Custom models have been built for low and tall pocosin at Dare County Bomb Range (see NEXUS; J. Scott 1999). Otherwise, fuel model (FM) 7 works well for the Pond Pine Woodland areas, except where there is a significant understory—in those cases FM 4 and 6 will suffice. Swamp forest, bay forest, and Atlantic White Cedar forests model adequately using FM 8, 9, or 10, depending on the moisture of the litter layer. Beetle-killed areas initially model best using the appropriate slash model (FM 12-14), but then transition to shrub models with time (FM 4-7).

At this time there is no need to develop additional custom models, although more research is required in such areas as live fuel moisture, post fire vegetation response, and fire frequency in shrub-scrub systems (e.g., note the variation in return intervals in Table 1).

Table 1. Literature summary of return intervals in southern shrub-scrub communities.

Vegetation Type	RI (yrs)	Reference
Atlantic White Cedar	25-250 / **	Frost 1987; **ESDCAFR 1995, p. 4-19
Low Pocosin	13-50	Sharitz and Gresham 1998
Low Pocosin	20	ESDCAFR 1995, p. 4-9
High Pocosin	25-50	Sharitz and Gresham 1998
High Pocosin	10-50	Ash *et al.* 1983
High Pocosin	5-8	ESDCAFR 1995, p. 4-12
Pond Pine Woodland (Dry Periods)	10-20	Landaal 1991c
Pond Pine Woodland (Favor Grass)	3-5	Hughes 1966; Wells 1942
Pond Pine Woodland	5-8	ESDCAFR 1995, p. 4-16
Pond Pine Woodland (Favor Cane)	3-5	Frost 1989
Pond Pine Woodland (Favor Shrub)	5-18	Frost 1989
Pond Pine Woodland (Favor Cane)	10	Hughes 1957
Pond Pine Woodland	10-30	Lutz 1934; Wells 1946; Laessle 1958
Bay Forest	* / **	*Landaal 1991b; *Schafale and Weakley 1990; **ESDCAFR 1995, p. 4-21
Coastal Plain Savannas	2-8	Christensen 1981
Swamp Forest	** or 8	**ESDCAFR 1995, p. 4-25
Marsh	5	ESDCAFR 1995, p. 4-27

* Not maintained by fire
** Prescribed fire not recommended

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MONTHLY MAX TEMP 1966-2000
MANTEO AIRPORT, NC

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1966	--	--	--	66.75	74.07	80.63	87.65	84.79
1967	56.29	53.46	60.9	72.37	73.1	79.93	86.26	85.55
1968	50.21	47.55	62.93	67.4	75.23	85	87.19	90.48
1969	50.96	49.57	--	71.43	76.65	86	87.68	85.1
1970	46.29	55.81	58.94	69.43	78.23	83.97	85.71	86.1
1971	49.81	59.32	59.19	68.03	76.19	83.5	86.29	84.87
1972	59.84	56.17	61.9	72.13	73.52	80.33	86.68	85.55
1973	52.9	51.46	64.1	71.37	78.06	85.21	87.23	86.17
1974	63.81	56.57	66.9	73.63	76.13	81.43	85.87	84.87
1975	59.19	58.39	63.58	65.5	77	85.17	84.74	89.55
1976	53.58	65.83	67.71	74.43	75.55	81.59	87.32	84.94
1977	42.71	55.96	64.74	74.7	78.58	84.27	90.17	89.48
1978	48.97	43.46	59.62	70.6	76.04	83.84	89.06	89.42
1979	53.35	47.78	62.8	70.97	76.21	80.72	86.33	87.66
1980	52.72	49.3	62.15	72.73	78.87	86.64	89.85	90.78
1981	--	--	--	--	--	--	--	--
1982	--	53.11	59.06	67.37	78.68	81.23	86.65	85.81
1983	50.52	55.57	63.29	64.43	--	--	89.34	87.61
1984	48.84	59.76	57.03	68.23	80.14	87.03	86.54	87.84
1985	47.48	52.96	62.38	74.59	77.94	83.45	86.52	85.53
1986	51.87	52.46	59.9	69.93	78.06	85.4	90.97	85.06
1987	51.42	48.57	55.94	62.9	78	85.2	89.55	86.97
1988	47.39	53.14	58.81	--	74.65	82.4	87.39	87.29
1989	54.09	54.21	59.9	67.63	73.81	90.5	--	--
1990	59.39	62.82	64.71	71.17	76.42	85.07	85.52	87.84
1991	53.68	57.36	61.32	70.47	79.52	82.13	88.65	84.61
1992	52.26	54.69	59.9	65.77	70.58	79.33	87.45	82.68
1993	53.77	50.43	56.74	64.4	--	82.73	89.03	--
1994	48.68	53.79	60.97	71.8	73.26	83.57	87.48	83.71
1995	52.9	48.43	59.94	69.27	74.84	81.6	88.58	84.94
1996	50.42	51.59	55.52	69.1	76.74	82.23	84.81	82.42
1997	52.32	56.04	63.9	65.73	73.45	79.03	85.65	84.84
1998	55.39	56.64	58.45	--	--	84.67	86.68	86.71
1999	56.42	54.54	56.68	70.63	73.9	80.7	89.26	85.55
2000	50.42	55.72	62.58	--	--	--	--	--
35-Year Total	1677.89	1782.46	1952.48	2154.89	2283.42	2664.5	2798.1	2674.72
Monthly Avg	**52.43**	**54.01**	**61.01**	**69.51**	**76.11**	**83.27**	**87.44**	**86.28**

MONTHLY MAX TEMP 1966-2000
MANTEO AIRPORT, NC

Sep	Oct	Nov	Dec
82.68	74.17	63.6	54.73
78.03	72.2	59.83	59.27
80.23	74.1	66.43	56.38
79.8	74.26	60.03	51.97
84.53	74.23	63.83	56.81
81.9	75.81	63.73	63.68
81.33	71.39	62.9	61.94
83.03	75.58	--	58.9
80.67	69.52	63.3	57
80.83	74.23	67.43	57.03
82.2	69.65	58	54
86.27	71.26	65.97	56.7
83.85	73.17	67.76	60.13
82.2	73.9	68.46	57.07
85.72	72.23	62.31	57.88
--	--	--	--
79.67	69.23	64.37	59.03
83.07	67	64	57.32
80	75.39	62.33	62.63
82.78	77.23	71.67	54.74
81.83	74.58	65.37	55.06
81.77	68	65.07	54.03
78.57	67.23	64.7	51.74
--	73.11	65.43	46.61
79.93	74.97	--	61.17
80.67	70.97	62.4	57.71
79.93	68.16	63.43	54.23
81.13	71.74	63.13	51.06
79.03	70.39	66.8	58.13
79.2	74.45	59.47	48.87
80.2	71.52	56.53	55.29
80.23	72.42	59.8	54
83.37	72.77	63.2	59.35
79.27	71.58	68.1	55.39
--	--	--	--
2603.92	2386.44	1979.38	1859.85
81.37	**72.32**	**63.85**	**56.36**

MONTHLY MIN TEMP 1966-2000
MANTEO AIRPORT, NC

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1966	--	--	--	48.04	55.97	62.9	71.23	69.9
1967	38.35	35	41.45	48.93	53.1	62.6	69.97	70.19
1968	32.17	29.79	41.39	48.6	56.84	67.47	71.58	74.32
1969	34.19	35.82	--	50.3	59.58	68.07	72.97	69.84
1970	27.58	34.52	40.52	49.8	60.35	67.9	70.26	71.19
1971	31.29	36.75	39.52	45.97	56.81	67.53	71.74	70.42
1972	41.06	36.14	41	47.1	57.35	62.9	70.19	70.42
1973	35.74	32.36	46.48	50.2	57.87	68.5	70.23	71.03
1974	45.45	37.32	44.42	51.53	59.06	65.23	68.71	69.19
1975	39.16	37.79	41.71	45.1	59.42	67.13	69.61	71.55
1976	30.9	39.03	45.45	48.8	57.52	65.03	67.74	67.16
1977	22.84	31.68	43.35	51.47	58.77	64.6	70.87	71.45
1978	31.13	27.61	37.66	49.79	57.78	64.95	69.53	72.92
1979	35.19	29.22	41.27	50.76	59.48	64.46	70.11	70.66
1980	37.48	28.41	40.27	49.27	57	63.96	69.81	71.08
1981	--	--	--	--	--	--	--	--
1982	--	38.43	43.81	51.17	70.1	72.4	72	70.35
1983	37.48	37.82	46.13	50.3	--	--	71.31	72.59
1984	30.45	37.57	35.57	45.11	57.14	65.41	66.27	69.1
1985	28.26	30.48	43.82	53.79	61.03	67.24	71.2	69.68
1986	34.48	38.43	41.13	50.53	59.9	69.8	74.39	70.32
1987	36.45	34.11	39.97	48.3	60.23	70.37	74.26	73.81
1988	32.97	36.86	42.29	--	58.52	65.6	74.71	75.94
1989	38.86	39.43	45.65	53.33	61.05	72.2	--	--
1990	41.68	46.14	49.23	52.47	61.55	70.4	74.61	74.1
1991	40.26	39.71	46.97	53.8	63.1	69.37	75.68	73
1992	39	39.41	41.45	50.3	54.97	64.7	74.77	72.16
1993	41.42	35.07	40.19	49.2	--	68.6	74.84	--
1994	32.48	36.25	42.35	55.8	57.97	70.53	74.71	70.74
1995	39.84	35.07	43.58	52.43	59.87	68.77	75.35	73.26
1996	34.55	34.69	39.23	51.17	59.94	69.47	72.1	70
1997	36.23	40.93	45.97	48.43	58.06	64.77	72.65	70.03
1998	40.84	43.68	44.87	--	--	70.23	73.32	73.9
1999	38.81	40.88	39.85	50.42	60	68.37	74.52	72.59
2000	34.86	38.77	46.23	--	--	--	--	--
35-Year Total	1141.45	1195.17	1362.78	1552.21	1770.33	2151.46	2301.24	2212.89
Monthly Avg	**35.67**	**36.22**	**42.59**	**50.07**	**59.01**	**67.23**	**71.91**	**71.38**

MONTHLY MIN TEMP 1966-2000
MANTEO AIRPORT, NC

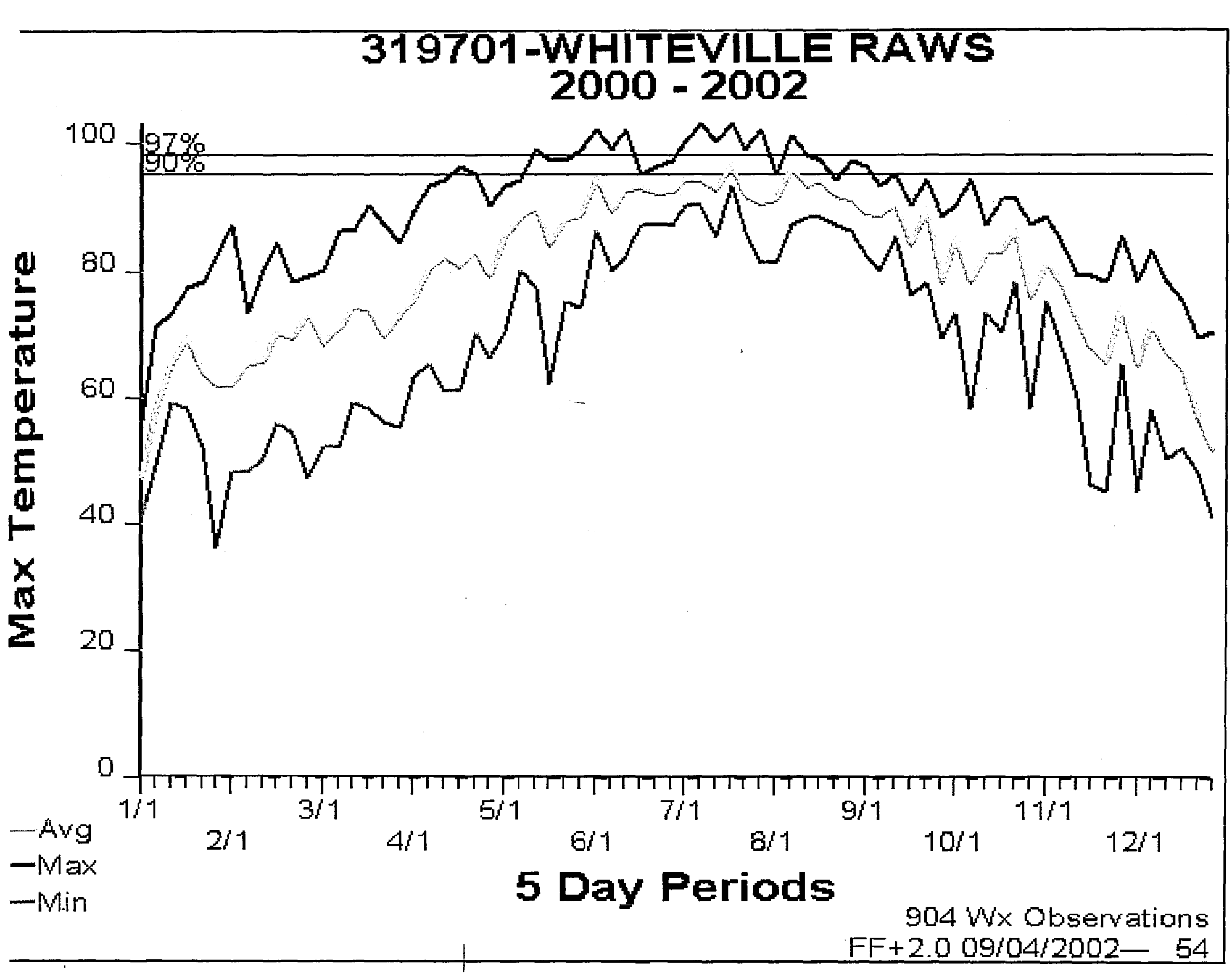
Sep	Oct	Nov	Dec
65.54	56.67	46.63	36.77
61.47	55.87	41.9	40.9
65.77	57.26	47.21	36.77
65.7	59.94	44.17	36.4
67.8	59.29	46.8	39.48
68.24	62.71	45.8	46.23
66.33	56.06	46.63	42.87
67.83	58.94	--	39.69
66.37	50.16	44.67	38.17
66.17	58.32	47.93	38.1
61.43	51.48	36.9	32.47
68.3	55.16	50.17	37.73
64.33	54.28	53.93	40.2
68.27	53.55	48.89	37.13
67.93	53	42.62	35.8
--	--	--	--
65.8	55.32	51.13	45.58
66.9	52.71	45.52	42.56
62.03	59.58	44.47	42.8
67.59	63.87	56.73	36.61
67.07	61	52.53	42.94
68.83	51.68	48.2	39.52
68.3	52.13	49.57	38.26
--	57.37	51.17	33.29
66.23	60	--	45.86
67.03	55.55	47.7	41.94
68.93	54.9	50.07	40.77
68.2	57.42	49.27	37.55
65.53	57.06	52.33	45.87
68.03	60	42.2	34.81
68.4	55.58	42.47	41.32
66.87	57.52	46.63	40.61
68.57	58.19	48.73	46.23
68.56	58	51.9	41
--	--	--	--
2134.35	1870.57	1474.87	1316.23
66.7	**56.68**	**47.58**	**39.88**

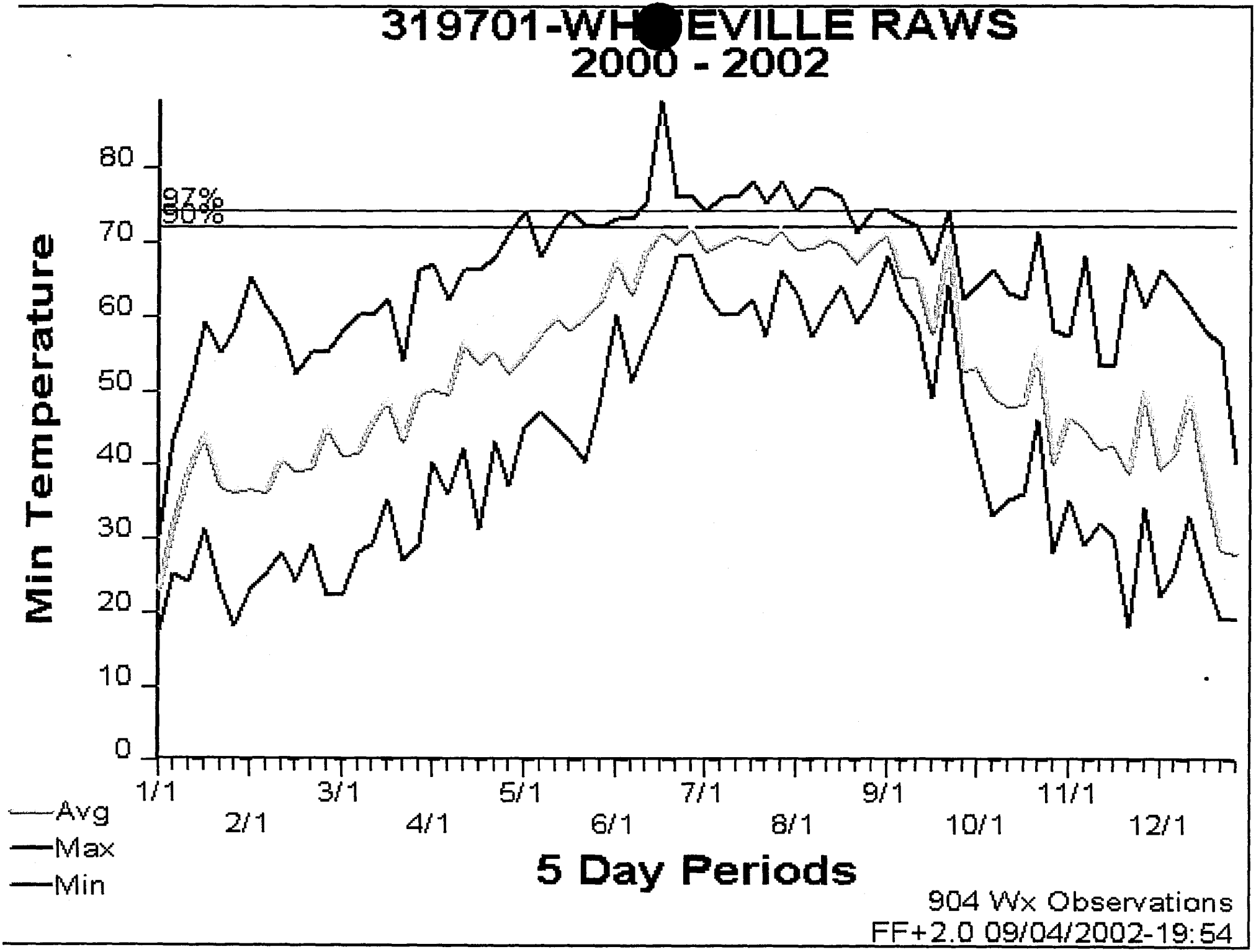
MONTHLY PRECIPITATION 1966-2000
MANTEO AIRPORT, NC

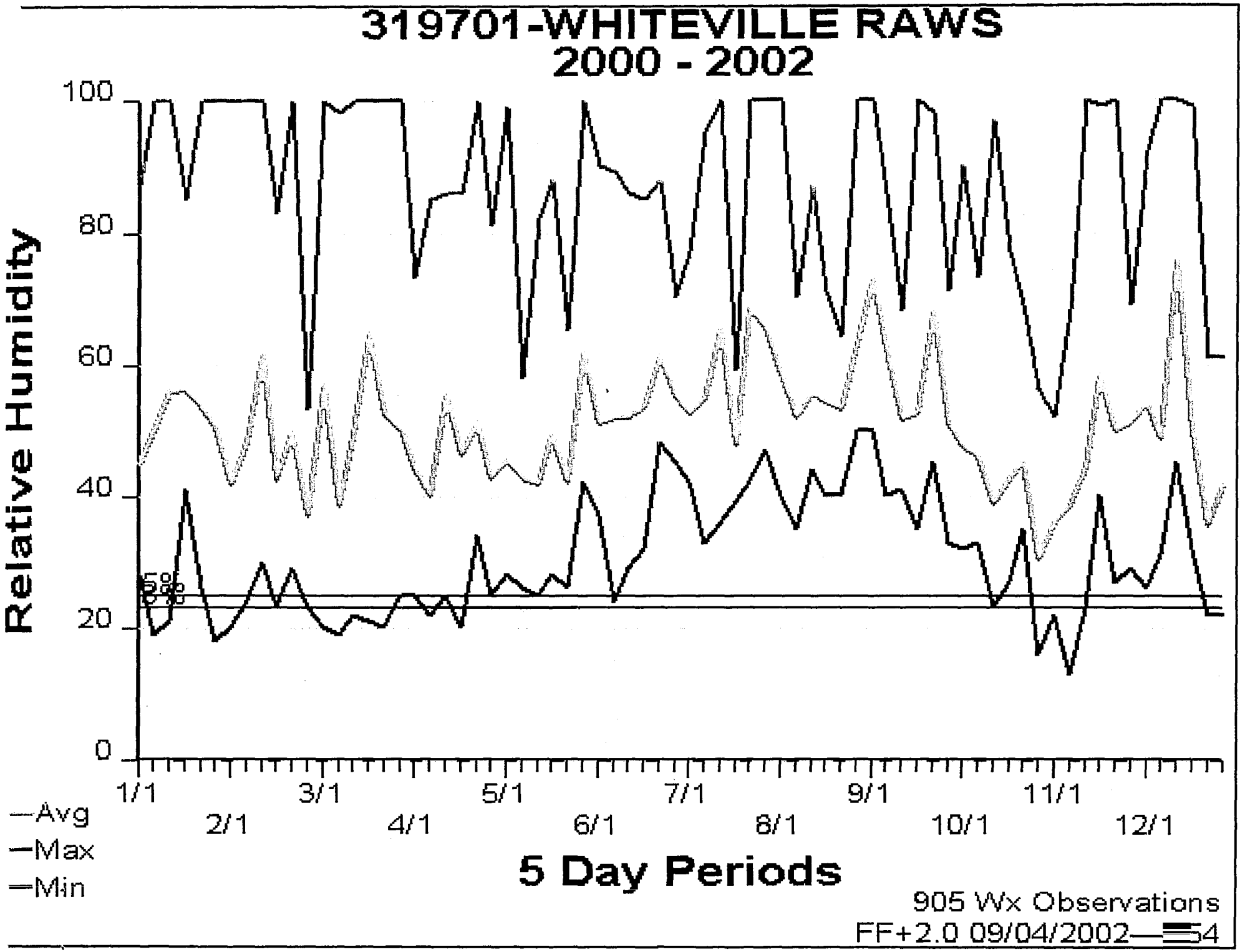
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1966	--	--	--	1.03	12.46	4.92	3.36	9.99
1967	3.57	4.74	1.47	0.85	3.32	2.49	9.32	10.78
1968	3.15	2.68	3.23	2.77	5.66	3.2	5.32	1.14
1969	2.62	4	--	3.85	2.51	5.24	4.59	5.06
1970	3.3	7.72	2.84	5.15	2.69	5.71	6.48	4.39
1971	3.68	4.9	6.61	3.43	3.76	2.18	7.39	4.98
1972	5.32	2.8	2.94	1.03	3.16	1.98	9.3	2.31
1973	2.96	5.93	3.53	5.86	2.02	4.91	4.18	7.05
1974	3.89	4.07	6.62	4.42	4.11	9.09	4.93	10.82
1975	4.12	2.59	3.74	3.03	4.57	5.44	7.34	2.71
1976	2.38	2.09	1.96	1.38	7.2	4.95	9.46	6.57
1977	3.49	1.56	3.65	2.78	4.64	2.77	3.82	4.23
1978	9.69	2.01	6.12	1.63	3.83	2.57	3.58	5.9
1979	7.59	5.18	2.64	3.19	9.32	3.76	4.47	2.88
1980	5.31	3.13	6.53	4.66	4.42	3.4	4.48	--
1981	--	--	--	--	--	--	--	--
1982	--	5.34	2.84	3.45	2.68	9.4	4.74	3.64
1983	4.82	7.64	9.06	8.55	--	--	1.26	3.23
1984	1.99	3.95	3.98	7.26	5.87	0.88	7.89	7.53
1985	4.83	4.42	2.6	1.02	6.51	5.21	9.97	4.69
1986	4.2	1.1	1.98	0.75	0.16	5.82	4.55	16.05
1987	8.17	2.53	8.21	4.53	4.2	3.64	1.58	5.17
1988	4.69	2.98	3.16	--	2.9	1.92	2.43	2.96
1989	3.07	2.49	9.42	4.71	--	4.89	--	--
1990	3.04	1.94	4.06	4.01	5.95	4.62	2.1	5.21
1991	7.5	0.55	6.09	1.13	0.02	4.17	6.18	7.41
1992	3.16	1.9	4.13	1.13	6.84	5.08	6.95	8.11
1993	7.47	2.37	6.53	2.69	--	3.46	4.38	--
1994	6.2	0.9	6.89	0.95	3.37	3.33	7.84	4.53
1995	4.17	6.2	2.68	1.82	2.53	6.35	0.51	4.94
1996	5.31	2.12	6	2.57	1.4	9.62	9.32	6.74
1997	2.85	2	3.18	2.75	2.11	2.73	2.31	3.27
1998	7.49	6.25	6.41	--	--	4.03	5.85	4.53
1999	3.85	1.95	3.28	2.04	3.99	5.51	2.95	9.6
2000	5.23	2.4	1.58	--	--	--	--	--
35-Year Total	149.11	112.43	143.96	94.42	122.2	143.27	168.83	176.42
Monthly Avg	4.66	3.41	4.5	3.05	4.21	4.48	5.28	5.88
No Data Months	3	2	3	4	6	3	3	5
Adjusted 35-YR	**163**	**119**	**157**	**107**	**147**	**157**	**185**	**206**

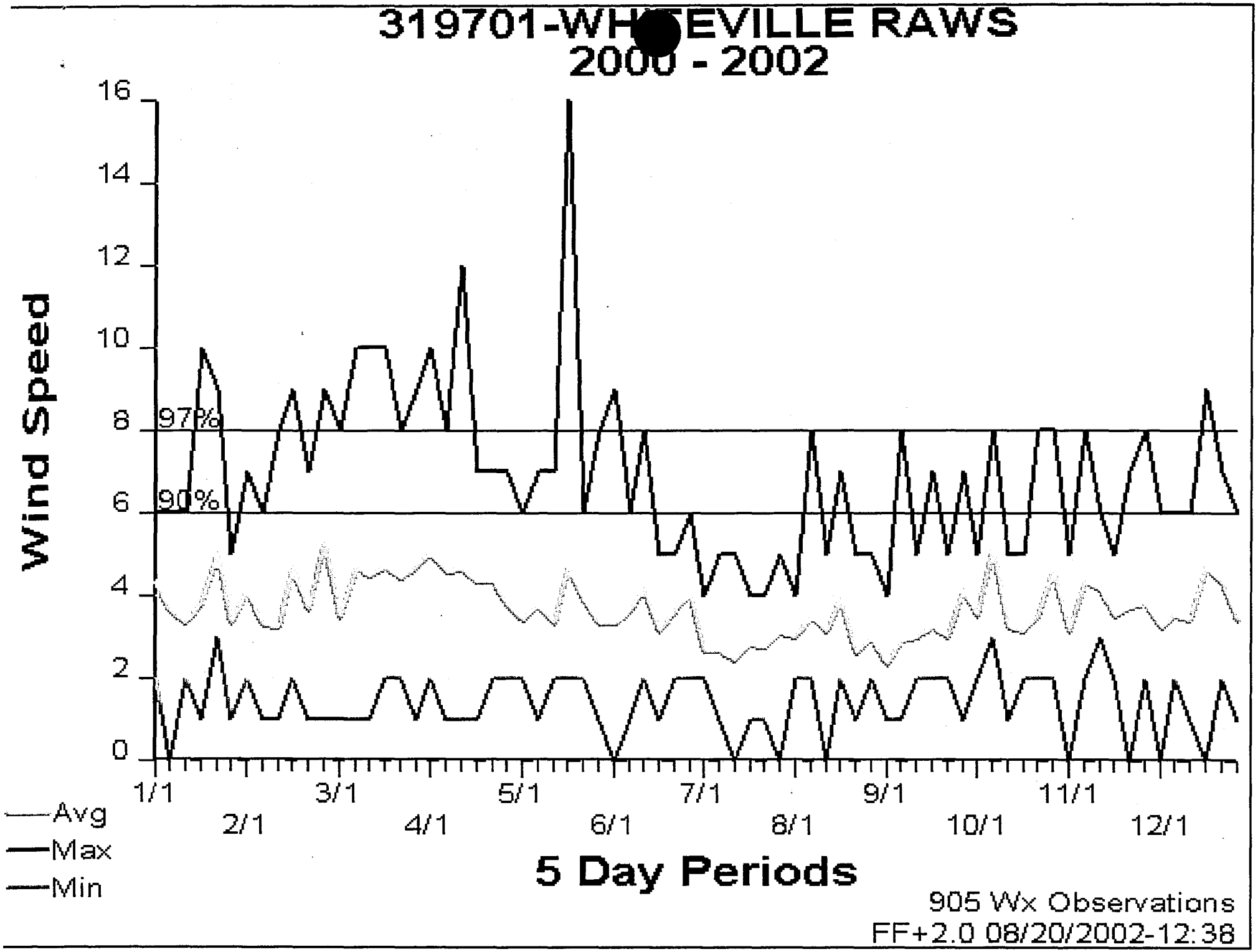
MONTHLY PRECIPITATION 1966-2000
MANTEO AIRPORT, NC

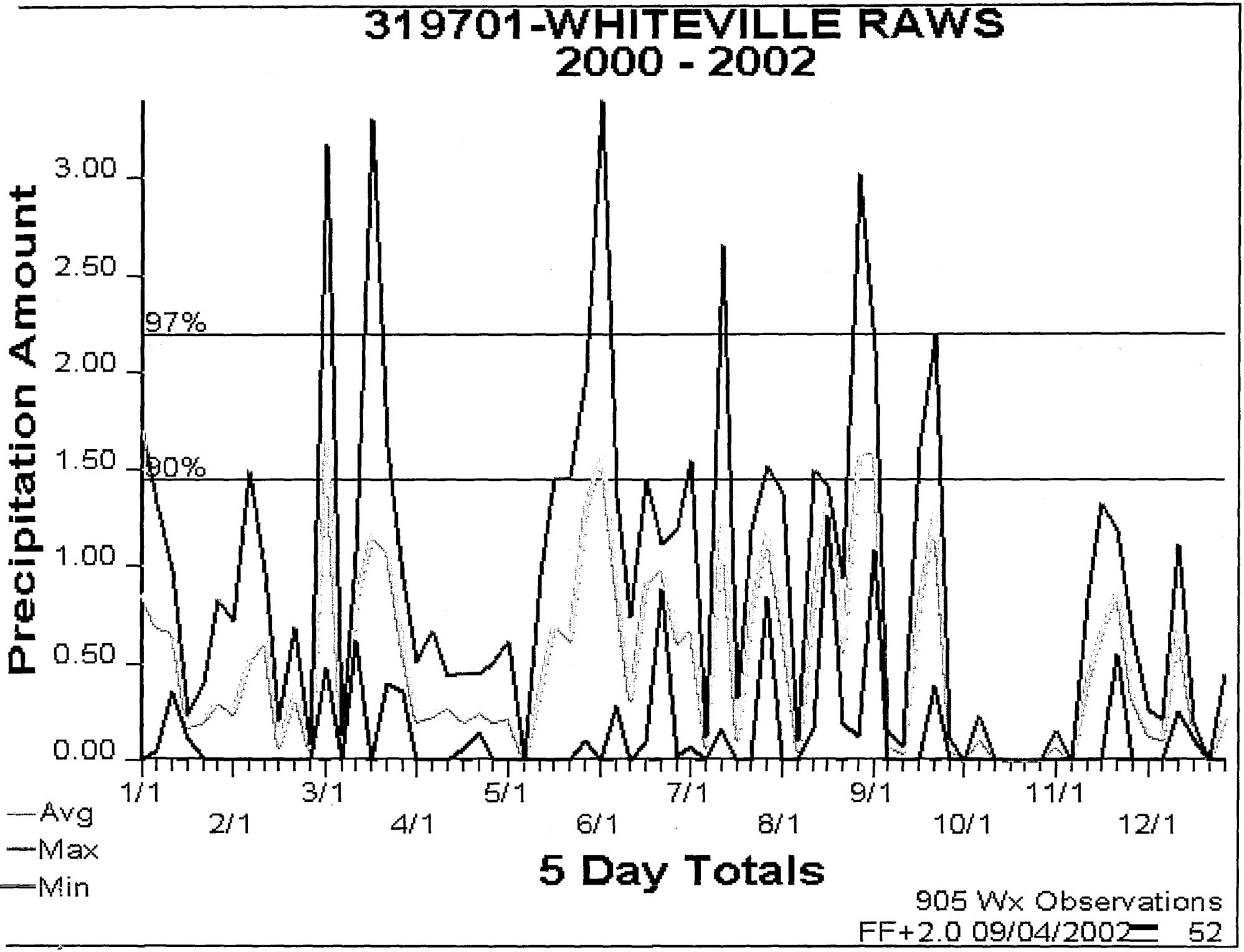
Sep	Oct	Nov	Dec
7.82	0.79	0.56	4.57
5.95	1.54	3	5.3
5.89	5.61	4.23	1.67
3.9	2.75	3.8	3.81
3.26	2.32	2.84	3.47
3.04	14.54	2.29	1.51
2.91	9.31	6.57	4.1
3.53	1.17	--	6.13
2.63	2.35	0.93	3.46
9.03	5.52	2.78	4.86
7.78	2.86	2.95	3.96
6.33	8.07	4.66	5.45
0.53	0.95	5.06	2.46
10.17	1.54	4.93	2.23
5.07	3.52	3.96	4.05
--	--	--	--
4.6	3.76	4.17	5.08
6.28	1.66	4.88	6.98
7.25	0.86	3.48	1.69
4.18	3.74	11.05	0.81
0.75	2.76	2.91	4.23
5.77	2.01	2.71	4.82
0.39	3.35	5.15	0.33
--	7.59	3.37	6.56
0.38	4.39	--	2.61
1.73	5.35	1.07	4.24
4.75	1.27	1.25	1.69
3.49	8.09	1.96	2.68
3.3	5.19	4.8	2.39
2.81	3.84	3.09	3.37
7.71	3.6	4.16	2.71
4.56	2.13	3.63	4.65
5.41	1.05	1.53	6.55
10.39	5.8	1.92	1.42
--	--	--	--
151.59	129.28	109.69	119.84
4.74	3.92	3.54	3.63
3	2	4	2
166	**137**	**124**	**127**

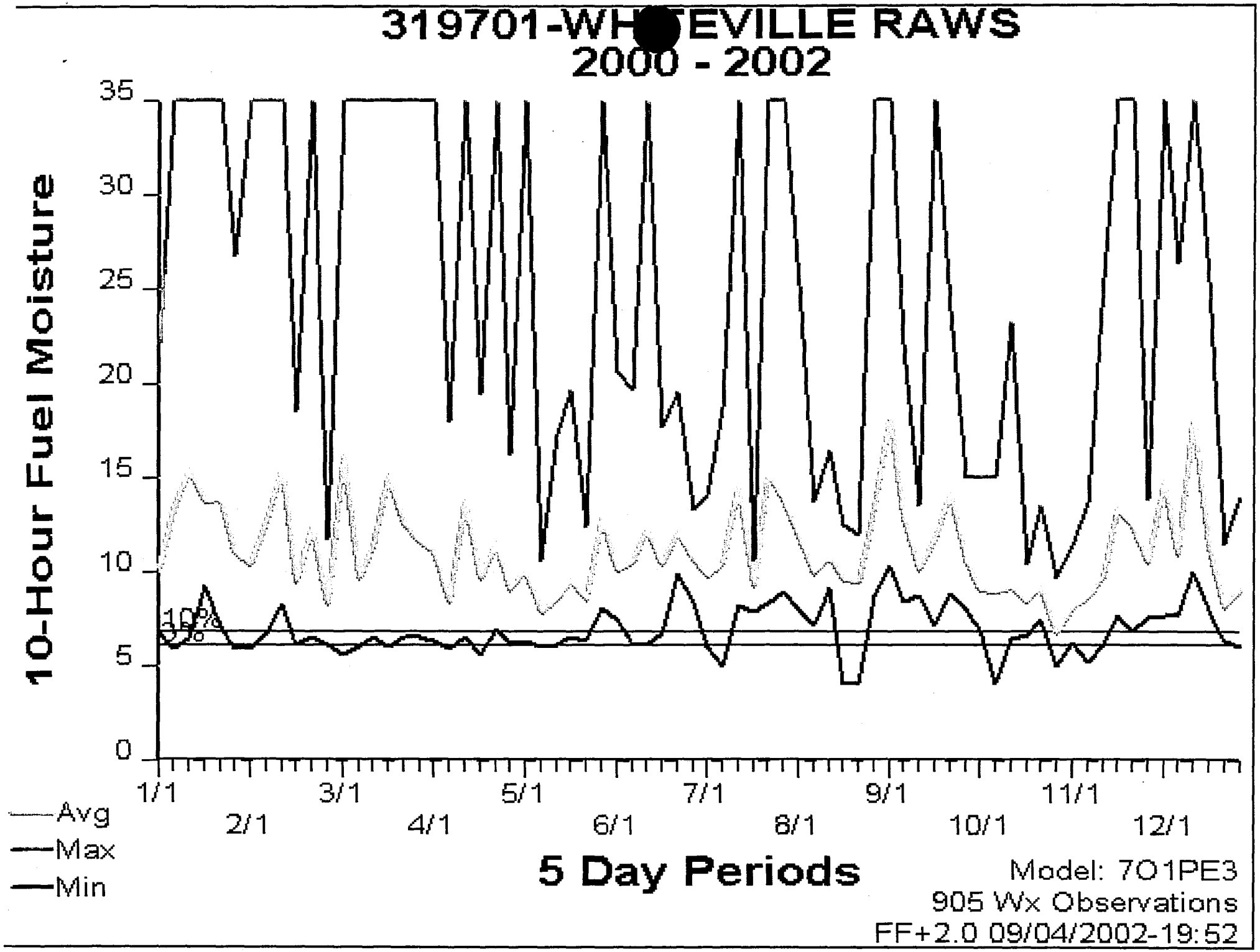

319701-WHITEVILLE RAWS
2000 - 2002
100
80
60
40
20
0
97%
90%
Max Temperature
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
—Avg
—Max
—Min
5 Day Periods
904 Wx Observations
FF+2.0 09/04/2002— 54

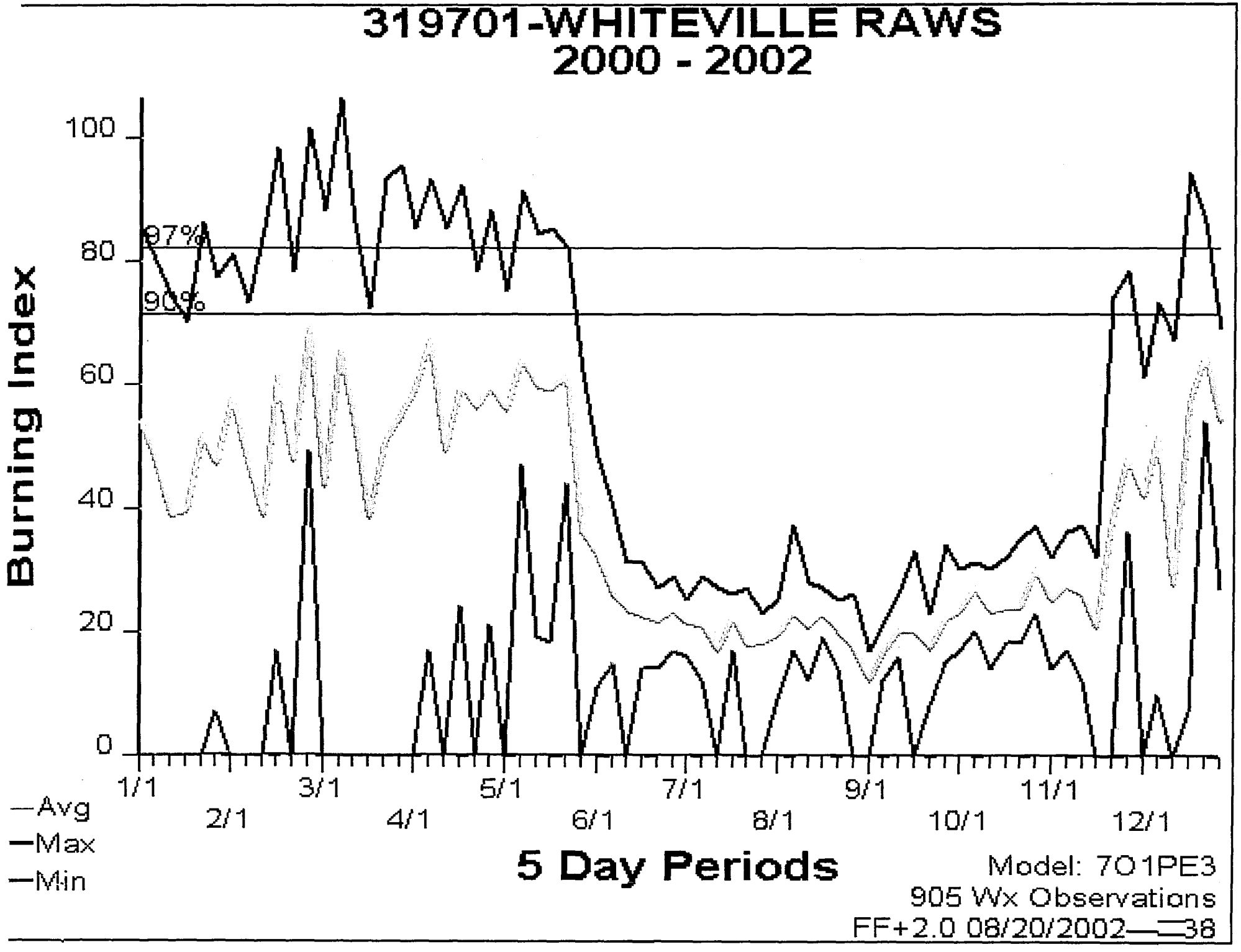

319701-WH EVILLE RAWS
2000 - 2002
Min Temperature
80
70
60
50
40
30
20
10
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
5 Day Periods
Avg
Max
Min
904 Wx Observations
FF+2.0 09/04/2002-19:54

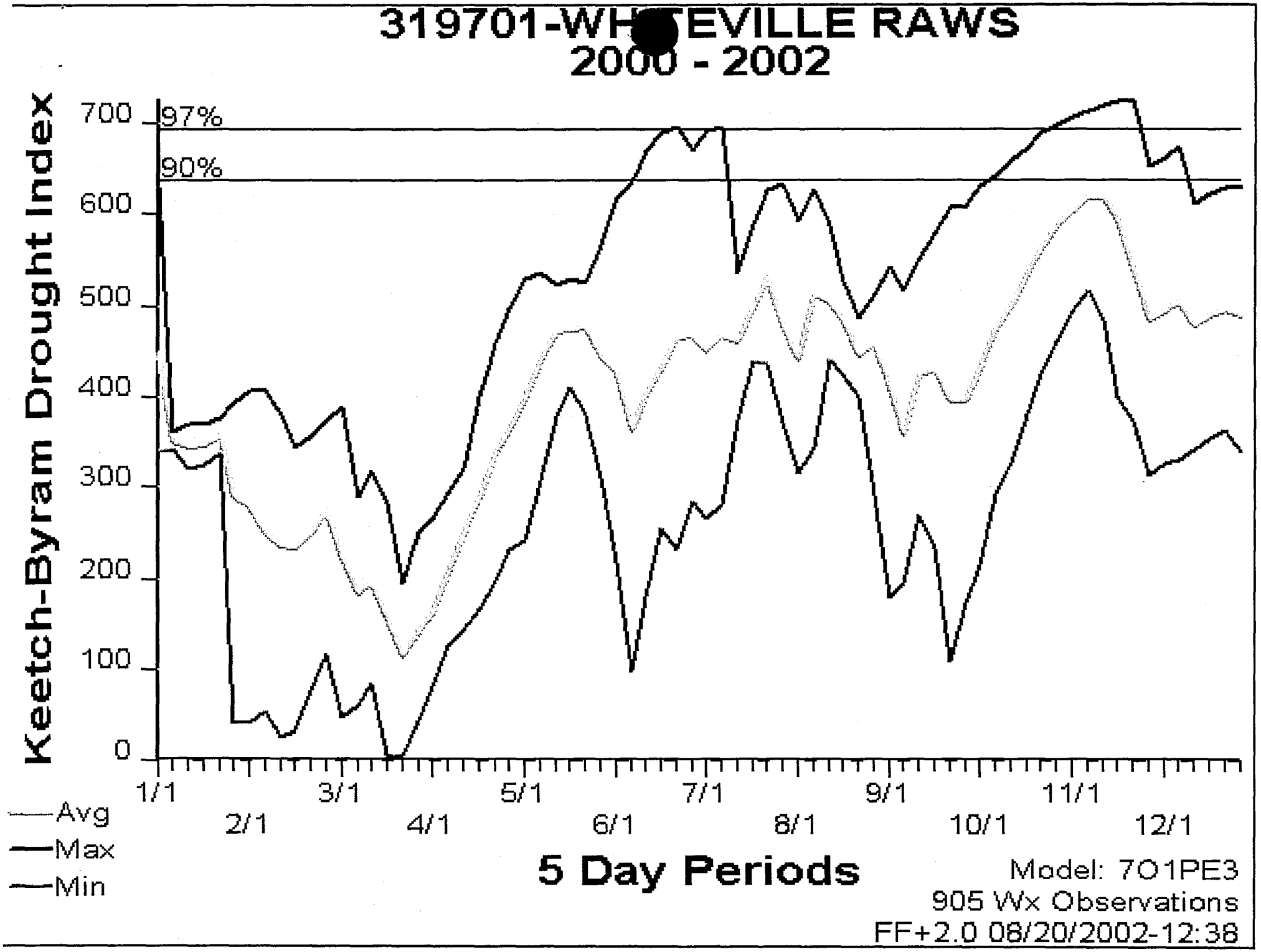

319701-WHITEVILLE RAWS
2000 - 2002
Relative Humidity
100
80
60
40
20
0
5%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
—Avg
—Max
—Min
5 Day Periods
905 Wx Observations
FF+2.0 09/04/2002—54


319701-WHITEVILLE RAWS
2000 - 2002
Wind Speed
16
14
12
10
8
6
4
2
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
5 Day Periods
Avg
Max
Min
905 Wx Observations
FF+2.0 08/20/2002-12:38


319701-WHITEVILLE RAWS
2000 - 2002
Precipitation Amount
3.00
2.50
2.00
1.50
1.00
0.50
0.00
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Avg
Max
Min
5 Day Totals
905 Wx Observations
FF+2.0 09/04/2002
52


319701-WHITEVILLE RAWS
2000 - 2002
10-Hour Fuel Moisture
35
30
25
20
15
10
5
0
10%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
5 Day Periods
Avg
Max
Min
Model: 7O1PE3
905 Wx Observations
FF+2.0 09/04/2002-19:52


319701-WHITEVILLE RAWS
2000 - 2002
Burning Index
100
80
60
40
20
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
5 Day Periods
—Avg
—Max
—Min
Model: 7O1PE3
905 Wx Observations
FF+2.0 08/20/2002—=38


319701-WHITEVILLE RAWS
2000 - 2002
Keetch-Byram Drought Index
700
600
500
400
300
200
100
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
5 Day Periods
Avg
Max
Min
Model: 7O1PE3
905 Wx Observations
FF+2.0 08/20/2002-12:38

FireFamily Plus Wind Speed vs Direction Report

Station:319701 2000 - 2002
January 1 - December 31 by 5 Day Time Periods

5-Day Period Beginning 1/1

	Wind Speed, MPH											
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	TOTAL N	AVG PCT SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE			1	10.0								
1	10.0	6.0										
E												
SE												
S	1	10.0	1	10.0								
2	20.0	4.0										
SW												
W	1	10.0										
1	10.0	2.0										
NW	1	10.0	1	10.0								
2	20.0	4.0										
N	1	10.0	3	30.0								
4	40.0	4.8										
CLM												
TOT	4	40.0	6	60.0								
10	100.0	4.3										

5-Day Period Beginning 1/6

	Wind Speed, MPH											
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	TOTAL N	AVG PCT SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE												
E												
SE												
S			2	20.0								
2	20.0	4.5										
SW	1	10.0										
1	10.0	3.0										
W	2	20.0										
2	20.0	2.5										
NW			3	30.0								
3	30.0	5.0										
N			1	10.0								
1	10.0	4.0										
CLM	1	10.0										
1	10.0	0.0										

```
-----------------
TOT      4  40.0       6  60.0
 10 100.0    3.6

5-Day Period Beginning 1/11
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------------------
------------------
 NE                     1  10.0
  1  10.0     6.0
  E       1  10.0
  1  10.0     2.0
 SE       1  10.0
  1  10.0     3.0
  S       1  10.0
  1  10.0     2.0
 SW

  W       2  20.0       1  10.0
  3  30.0     3.0
 NW       2  20.0       1  10.0
  3  30.0     3.7
  N

CLM

-------------------------------------------------------------------------------------------
-----------------
TOT      7  70.0       3  30.0
 10 100.0    3.3

5-Day Period Beginning 1/16
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------------------
------------------
 NE       1  10.0
  1  10.0     2.0
  E       1  10.0
  1  10.0     3.0
 SE

  S                                    2  20.0
  2  20.0     9.0
 SW       1  10.0
  1  10.0     2.0
  W       1  10.0
  1  10.0     3.0
 NW

  N       3  30.0       1  10.0
  4  40.0     2.5
CLM

-------------------------------------------------------------------------------------------
-----------------
```

```
TOT       7  70.0       1  10.0       2  20.0
 10 100.0    3.8
```

5-Day Period Beginning 1/21

```
                                                    Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N   PCT       N   PCT       N   PCT       N   PCT       N   PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------------------
------------------
 NE                      1  11.1
  1  11.1     4.0
  E                      1  11.1
  1  11.1     4.0
 SE

  S

 SW

  W       1  11.1       1  11.1
  2  22.2     4.0
 NW                      2  22.2       1  11.1
  3  33.3     5.7
  N                      2  22.2
  2  22.2     6.0
CLM

-------------------------------------------------------------------------------------------
------------------
TOT       1  11.1       7  77.8       1  11.1
  9 100.0    5.0
```

5-Day Period Beginning 1/26

```
                                                    Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N   PCT       N   PCT       N   PCT       N   PCT       N   PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------------------
------------------
 NE       2  11.8
  2  11.8     2.5
  E

 SE       2  11.8
  2  11.8     2.5
  S                      2  11.8
  2  11.8     4.5
 SW       3  17.6       1   5.9
  4  23.5     3.0
  W       2  11.8       1   5.9
  3  17.6     3.7
 NW                      1   5.9
  1   5.9     5.0
  N       2  11.8       1   5.9
  3  17.6     3.0
CLM

-------------------------------------------------------------------------------------------
------------------
TOT      11  64.7       6  35.3
```

17 100.0 3.3

5-Day Period Beginning 2/1

	Wind Speed, MPH											
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	TOTAL N	AVG PCT SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE	2	13.3										
2	13.3	2.5										
E												
SE												
S	1	6.7	1	6.7								
2	13.3	3.5										
SW	1	6.7										
1	6.7	3.0										
W	1	6.7	1	6.7								
2	13.3	3.5										
NW			3	20.0								
3	20.0	5.7										
N	2	13.3	3	20.0								
5	33.3	4.4										
CLM												
TOT	7	46.7	8	53.3								
15	100.0	4.1										

5-Day Period Beginning 2/6

	Wind Speed, MPH											
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	TOTAL N	AVG PCT SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE	1	6.7										
1	6.7	3.0										
E	1	6.7										
1	6.7	3.0										
SE	3	20.0	1	6.7								
4	26.7	2.8										
S	1	6.7	1	6.7								
2	13.3	4.5										
SW												
W	1	6.7										
1	6.7	1.0										
NW	2	13.3	1	6.7								
3	20.0	3.3										
N	2	13.3	1	6.7								
3	20.0	4.0										
CLM												
TOT	11	73.3	4	26.7								
15	100.0	3.3										

5-Day Period Beginning 2/11

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE	1	6.7		1	6.7								
	2	13.3	2.5										
E	2	13.3											
	2	13.3	2.0										
SE													
S													
SW	2	13.3											
	2	13.3	2.0										
W	3	20.0											
	3	20.0	3.0										
NW													
N	1	6.7		4	26.7	1	6.7						
	6	40.0	4.3										
CLM													
TOT	9	60.0		5	33.3	1	6.7						
	15	100.0	3.2										

5-Day Period Beginning 2/16

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE				2	14.3								
	2	14.3	4.5										
E													
SE	1	7.1											
	1	7.1	3.0										
S	2	14.3		2	14.3								
	4	28.6	4.3										
SW	1	7.1		1	7.1								
	2	14.3	4.0										
W													
NW	1	7.1		1	7.1	2	14.3						
	4	28.6	5.8										
N				1	7.1								
	1	7.1	5.0										
CLM													
TOT	5	35.7		7	50.0	2	14.3						
	14	100.0	4.6										

5-Day Period Beginning 2/21

			Wind Speed, MPH									
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	TOTAL N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
	N PCT	SPEED										
NE	1	6.7	2	13.3								
	3 20.0	4.0										
E	1	6.7	1	6.7								
	2 13.3	3.0										
SE	2	13.3										
	2 13.3	2.0										
S	1	6.7	1	6.7								
	2 13.3	5.0										
SW												
W	1	6.7	2	13.3								
	3 20.0	3.7										
NW	1	6.7										
	1 6.7	3.0										
N			2	13.3								
	2 13.3	4.5										
CLM												
TOT	7	46.7	8	53.3								
	15 100.0	3.7										

5-Day Period Beginning 2/26

			Wind Speed, MPH									
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	TOTAL N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
	N PCT	SPEED										
NE												
E												
SE												
S	1	11.1	1	11.1	1	11.1						
	3 33.3	4.7										
SW			1	11.1								
	1 11.1	4.0										
W					1	11.1						
	1 11.1	9.0										
NW			1	11.1								
	1 11.1	4.0										
N			3	33.3								
	3 33.3	5.3										
CLM												
TOT	1	11.1	6	66.7	2	22.2						
	9 100.0	5.2										

5-Day Period Beginning 3/1

			Wind Speed, MPH											
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	
NE														
E	3	20.0												
3	20.0		1.3											
SE	3	20.0												
3	20.0		2.0											
S														
SW	1	6.7		2	13.3									
3	20.0		4.0											
W	1	6.7		1	6.7									
2	13.3		4.0											
NW				2	13.3	1	6.7							
3	20.0		6.3											
N	1	6.7												
1	6.7		3.0											
CLM														
TOT	9	60.0		5	33.3	1	6.7							
15	100.0		3.5											

5-Day Period Beginning 3/6

			Wind Speed, MPH											
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	
NE	1	6.7												
1	6.7		3.0											
E				1	6.7									
1	6.7		5.0											
SE	2	13.3												
2	13.3		2.5											
S				2	13.3	1	6.7							
3	20.0		5.3											
SW														
W	1	6.7		1	6.7									
2	13.3		2.5											
NW	1	6.7		3	20.0	1	6.7							
5	33.3		5.4											
N						1	6.7							
1	6.7		9.0											
CLM														
TOT	5	33.3		7	46.7	3	20.0							
15	100.0		4.7											

5-Day Period Beginning 3/11

Wind Speed, MPH

Dir	TOTAL N	TOTAL PCT	AVG SPEED	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE															
E	1	6.7				1	6.7								
	2	13.3	3.5												
SE						2	13.3								
	2	13.3	5.5												
S	1	6.7						1	6.7						
	2	13.3	6.5												
SW	1	6.7													
	1	6.7	1.0												
W	1	6.7				2	13.3								
	3	20.0	4.0												
NW	1	6.7				1	6.7	1	6.7						
	3	20.0	5.3												
N	1	6.7				1	6.7								
	2	13.3	3.5												
CLM															
TOT	6	40.0				7	46.7	2	13.3						
	15	100.0	4.5												

5-Day Period Beginning 3/16

Wind Speed, MPH

Dir	TOTAL N	TOTAL PCT	AVG SPEED	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE						2	13.3								
	2	13.3	5.5												
E	1	6.7				1	6.7								
	2	13.3	3.5												
SE	1	6.7				2	13.3								
	3	20.0	4.7												
S								1	6.7						
	1	6.7	10.0												
SW						1	6.7								
	1	6.7	4.0												
W	1	6.7													
	1	6.7	2.0												
NW						2	13.3								
	2	13.3	5.0												
N	1	6.7				2	13.3								
	3	20.0	4.0												
CLM															
TOT	4	26.7				10	66.7	1	6.7						
	15	100.0	4.7												

5-Day Period Beginning 3/21

Wind Speed, MPH

0 - 3	4 - 7	8 - 12	13 - 18	19 - 24	>24

Dir	TOTAL N	TOTAL PCT	AVG SPEED	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE	1	6.7													
	1	6.7	2.0												
E	1	6.7													
	1	6.7	2.0												
SE															
						2	13.3	1	6.7						
S															
	3	20.0	6.0												
SW	2	13.3													
	2	13.3	2.5												
W	1	6.7													
	1	6.7	2.0												
NW	1	6.7				2	13.3								
	3	20.0	4.7												
N	1	6.7				3	20.0								
	4	26.7	5.8												
CLM															
TOT	7	46.7				7	46.7	1	6.7						
	15	100.0	4.4												

5-Day Period Beginning 3/26

Wind Speed, MPH

Dir	TOTAL N	TOTAL PCT	AVG SPEED	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE															
E															
SE	1	5.6				1	5.6								
	2	11.1	3.0												
S						5	27.8	2	11.1						
	7	38.9	6.1												
SW	1	5.6													
	1	5.6	3.0												
W															
NW	2	11.1				2	11.1								
	4	22.2	4.0												
N	1	5.6				3	16.7								
	4	22.2	4.0												
CLM															
TOT	5	27.8				11	61.1	2	11.1						
	18	100.0	4.7												

5-Day Period Beginning 4/1

Wind Speed, MPH

Dir	TOTAL N	TOTAL PCT	AVG SPEED	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT

Dir	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
N	PCT	SPEED										
NE	2	13.3	1	6.7								
3	20.0	3.3										
E												
SE			2	13.3								
2	13.3	5.0										
S			1	6.7	2	13.3						
3	20.0	7.3										
SW			1	6.7								
1	6.7	4.0										
W			2	13.3								
2	13.3	5.0										
NW	1	6.7	1	6.7								
2	13.3	3.5										
N			2	13.3								
2	13.3	6.0										
CLM												
TOT	3	20.0	10	66.7	2	13.3						
15	100.0	5.0										

5-Day Period Beginning 4/6

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
N	PCT	SPEED												
NE														
E	2	13.3												
2	13.3	2.0												
SE														
S					2	13.3	2	13.3						
4	26.7	7.3												
SW	1	6.7			3	20.0								
4	26.7	4.5												
W	1	6.7												
1	6.7	3.0												
NW	1	6.7			1	6.7								
2	13.3	4.0												
N	1	6.7			1	6.7								
2	13.3	3.0												
CLM														
TOT	6	40.0			7	46.7	2	13.3						
15	100.0	4.5												

5-Day Period Beginning 4/11

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT

Dir	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT	TOTAL N	TOTAL PCT	AVG SPEED
NE			2	13.3	1	6.7							3	20.0	6.7
E															
SE	1	6.7	1	6.7									2	13.3	4.0
S	1	6.7	2	13.3									3	20.0	4.0
SW			3	20.0									3	20.0	5.7
W	2	13.3											2	13.3	2.0
NW			1	6.7									1	6.7	4.0
N			1	6.7									1	6.7	4.0
CLM															
TOT	4	26.7	10	66.7	1	6.7							15	100.0	4.6

5-Day Period Beginning 4/16

Wind Speed, MPH

Dir	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT	TOTAL N	TOTAL PCT	AVG SPEED
NE															
E															
SE	1	6.7											1	6.7	1.0
S	2	13.3	4	26.7									6	40.0	4.0
SW	1	6.7											1	6.7	3.0
W															
NW	2	13.3	3	20.0									5	33.3	5.2
N			2	13.3									2	13.3	5.5
CLM															
TOT	6	40.0	9	60.0									15	100.0	4.3

5-Day Period Beginning 4/21

Wind Speed, MPH

Dir	0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT	TOTAL N	TOTAL PCT	AVG SPEED

NE	1	6.7												
1	6.7	2.0												
E														
SE			2	13.3										
2	13.3	4.5												
S	2	13.3	3	20.0										
5	33.3	4.0												
SW	1	6.7												
1	6.7	3.0												
W			1	6.7										
1	6.7	4.0												
NW			4	26.7										
4	26.7	5.0												
N			1	6.7										
1	6.7	7.0												
CLM														
TOT	4	26.7	11	73.3										
15	100.0	4.3												

5-Day Period Beginning 4/26

	Wind Speed, MPH													
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24			
Dir	TOTAL N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT		
N	PCT	SPEED												
NE	2	13.3												
2	13.3	2.5												
E	1	6.7	1	6.7										
2	13.3	3.0												
SE	3	20.0												
3	20.0	2.7												
S	1	6.7	1	6.7										
2	13.3	5.0												
SW														
W														
NW	2	13.3	3	20.0										
5	33.3	4.4												
N			1	6.7										
1	6.7	6.0												
CLM														
TOT	9	60.0	6	40.0										
15	100.0	3.8												

5-Day Period Beginning 5/1

	Wind Speed, MPH													
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24			
Dir	TOTAL N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT		
N	PCT	SPEED												

```
------------------
 NE       1   6.7
  1   6.7    3.0
  E       2  13.3
  2  13.3    2.5
 SE       2  13.3
  2  13.3    2.5
  S       2  13.3       4  26.7
  6  40.0    4.0
 SW       1   6.7       1   6.7
  2  13.3    4.0
  W

 NW       1   6.7
  1   6.7    2.0
  N                     1   6.7
  1   6.7    4.0
CLM

--------------------------------------------------------------------------------
------------------
TOT       9  60.0       6  40.0
 15 100.0    3.4
```

5-Day Period Beginning 5/6

	TOTAL		Wind Speed, MPH 0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	
NE	1	6.7				1	6.7							
	2	13.3	3.5											
E				1	6.7									
	1	6.7	4.0											
SE	1	6.7												
	1	6.7	3.0											
S	2	13.3		4	26.7									
	6	40.0	4.0											
SW				1	6.7									
	1	6.7	4.0											
W	1	6.7												
	1	6.7	1.0											
NW				1	6.7									
	1	6.7	7.0											
N	1	6.7		1	6.7									
	2	13.3	3.0											
CLM														
TOT	6	40.0		9	60.0									
	15	100.0	3.7											

5-Day Period Beginning 5/11

	TOTAL		Wind Speed, MPH 0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	

NE	1	6.7	1	6.7
2	13.3	3.5		
E	1	6.7		
1	6.7	2.0		
SE				
S			1	6.7
1	6.7	5.0		
SW	1	6.7		
1	6.7	3.0		
W	2	13.3		
2	13.3	2.5		
NW	4	26.7	2	13.3
6	40.0	3.2		
N	1	6.7	1	6.7
2	13.3	4.5		
CLM				
TOT	10	66.7	5	33.3
15	100.0	3.3		

5-Day Period Beginning 5/16

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE													
E	1	6.7											
1	6.7	3.0											
SE	1	6.7		1	6.7								
2	13.3	3.0											
S	2	13.3		2	13.3								
4	26.7	3.5											
SW	1	6.7		1	6.7								
2	13.3	5.0											
W													
NW				2	13.3								
2	13.3	5.0											
N	1	6.7		2	13.3			1	6.7				
4	26.7	6.8											
CLM													
TOT	6	40.0		8	53.3			1	6.7				
15	100.0	4.7											

5-Day Period Beginning 5/21

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE													

```
  E

 SE       1   6.7
  1   6.7    3.0
  S       2  13.3       4  26.7
  6  40.0    4.5
 SW       1   6.7
  1   6.7    2.0
  W       1   6.7
  1   6.7    3.0
 NW       2  13.3       1   6.7
  3  20.0    3.3
  N       1   6.7       2  13.3
  3  20.0    4.3
CLM

--------------------------------------------------------------------------------
-----------------
TOT       8  53.3       7  46.7
 15 100.0    3.9
```

5-Day Period Beginning 5/26

			Wind Speed, MPH											
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
	N	PCT SPEED												
NE	3	16.7			1	5.6								
	4	22.2 2.5												
E	1	5.6												
	1	5.6 1.0												
SE	2	11.1												
	2	11.1 3.0												
S					1	5.6								
	1	5.6 4.0												
SW	1	5.6												
	1	5.6 2.0												
W														
NW	3	16.7			1	5.6	1	5.6						
	5	27.8 4.2												
N	2	11.1			1	5.6	1	5.6						
	4	22.2 4.0												
CLM														
TOT	12	66.7			4	22.2	2	11.1						
	18	100.0 3.3												

5-Day Period Beginning 6/1

			Wind Speed, MPH											
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
	N	PCT SPEED												
NE	1	6.7												
	1	6.7 3.0												

```
  E       1   6.7
  1   6.7     2.0
 SE                       2  13.3
  2  13.3     4.0
  S       1   6.7         1   6.7       1   6.7
  3  20.0     5.3
 SW

  W       1   6.7         1   6.7
  2  13.3     3.0
 NW       3  20.0         1   6.7
  4  26.7     3.0
  N       1   6.7
  1   6.7     3.0
CLM       1   6.7
  1   6.7     0.0
-------------------------------------------------------------------------------
-----------------
TOT       9  60.0         5  33.3       1   6.7
 15 100.0     3.3
```

5-Day Period Beginning 6/6

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE	1	6.7		3	20.0								
4	26.7	3.8											
E													
SE	1	6.7		2	13.3								
3	20.0	3.7											
S													
SW	1	6.7											
1	6.7	3.0											
W													
NW	2	13.3		2	13.3								
4	26.7	3.5											
N	1	6.7		2	13.3								
3	20.0	3.7											
CLM													
TOT	6	40.0		9	60.0								
15	100.0	3.6											

5-Day Period Beginning 6/11

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE													
E													

```
 SE       2  13.3
  2  13.3    2.5
  S       2  13.3       3  20.0
  5  33.3    3.8
 SW       1   6.7
  1   6.7    3.0
  W

 NW       3  20.0       2  13.3       1   6.7
  6  40.0    5.0
  N                     1   6.7
  1   6.7    5.0
CLM

--------------------------------------------------------------------------------
-----------------
TOT      8  53.3       6  40.0       1   6.7
 15 100.0    4.1
```

5-Day Period Beginning 6/16

```
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24       >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT    SPEED
--------------------------------------------------------------------------------
------------------
 NE

  E       4  28.6
  4  28.6    2.5
 SE       1   7.1
  1   7.1    1.0
  S                     5  35.7
  5  35.7    4.0
 SW

  W       1   7.1
  1   7.1    1.0
 NW                     1   7.1
  1   7.1    4.0
  N       1   7.1       1   7.1
  2  14.3    4.0
CLM

--------------------------------------------------------------------------------
-----------------
TOT      7  50.0       7  50.0
 14 100.0    3.1
```

5-Day Period Beginning 6/21

```
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24       >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT    SPEED
--------------------------------------------------------------------------------
------------------
 NE       1  10.0
  1  10.0    2.0
  E                     1  10.0
  1  10.0    5.0
```

```
SE        1  10.0        1  10.0
 2  20.0     3.5
 S        1  10.0        4  40.0
 5  50.0     4.0
SW

 W

NW

 N        1  10.0
 1  10.0     2.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT       4  40.0        6  60.0
 10 100.0     3.6
```

5-Day Period Beginning 6/26

```
                                                Wind Speed, MPH
          0 - 3          4 - 7          8 - 12         13 - 18        19 - 24         >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------
------------------
 NE

  E

 SE        1   9.1
  1   9.1     3.0
  S        2  18.2        4  36.4
  6  54.5     3.8
 SW                       1   9.1
  1   9.1     6.0
  W

 NW        1   9.1        1   9.1
  2  18.2     4.0
  N                       1   9.1
  1   9.1     4.0
CLM

-------------------------------------------------------------------------------
------------------
TOT       4  36.4        7  63.6
 11 100.0     4.0
```

5-Day Period Beginning 7/1

```
                                                Wind Speed, MPH
          0 - 3          4 - 7          8 - 12         13 - 18        19 - 24         >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------
------------------
 NE        2  14.3
  2  14.3     2.0
  E        1   7.1
  1   7.1     3.0
 SE
```

```
  S       6  42.9       1   7.1
  7  50.0    2.6
 SW

  W       1   7.1
  1   7.1    3.0
 NW       1   7.1       1   7.1
  2  14.3    3.5
  N       1   7.1
  1   7.1    2.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT      12  85.7       2  14.3
 14 100.0    2.6
```

5-Day Period Beginning 7/6

```
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT      N    PCT      N    PCT      N    PCT      N    PCT      N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------
------------------
 NE       2  13.3
  2  13.3     1.5
  E       2  13.3
  2  13.3     1.5
 SE       2  13.3
  2  13.3     3.0
  S       1   6.7
  1   6.7     3.0
 SW                         1   6.7
  1   6.7     5.0
  W       3  20.0
  3  20.0     1.7
 NW       1   6.7
  1   6.7     3.0
  N       1   6.7       2  13.3
  3  20.0     4.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT      12  80.0       3  20.0
 15 100.0    2.7
```

5-Day Period Beginning 7/11

```
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT      N    PCT      N    PCT      N    PCT      N    PCT      N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------
------------------
 NE       3  20.0
  3  20.0     2.3
  E       2  13.3
  2  13.3     2.0
 SE       1   6.7
  1   6.7     3.0
```

```
  S       2  13.3
  2  13.3    1.5
 SW

  W

 NW                    1   6.7
  1   6.7    5.0
  N       4  26.7       1   6.7
  5  33.3    2.8
CLM       1   6.7
  1   6.7    0.0
-------------------------------------------------------------------------------
-----------------
TOT      13  86.7       2  13.3
 15 100.0    2.4
```

5-Day Period Beginning 7/16

			Wind Speed, MPH											
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24		TOTAL	AVG
Dir	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	SPEED
NE	1	6.7											1	6.7
E			1	6.7									1	4.0
SE														
S	4	26.7											4	26.7
SW	1	6.7											1	6.7
W														
NW	4	26.7	2	13.3									6	40.0
N	2	13.3											2	13.3
CLM														
TOT	12	80.0	3	20.0									15	100.0

5-Day Period Beginning 7/21

			Wind Speed, MPH											
	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24		TOTAL	AVG
Dir	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	SPEED
NE	3	20.0											3	20.0
E	1	6.7	1	6.7									2	13.3
SE	2	13.3	1	6.7									3	20.0
S	3	20.0												

```
  3  20.0    2.7
 SW

  W       1   6.7       1   6.7
  2  13.3    2.5
 NW                     1   6.7
  1   6.7    4.0
  N                     1   6.7
  1   6.7    4.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT     10  66.7       5  33.3
 15 100.0    2.7
```

5-Day Period Beginning 7/26

```
                                          Wind Speed, MPH
          0 - 3        4 - 7        8 - 12       13 - 18      19 - 24       >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------
-----------------
 NE

  E       1   6.3
  1   6.3    2.0
 SE       2  12.5
  2  12.5    2.5
  S       1   6.3       4  25.0
  5  31.3    4.0
 SW       1   6.3
  1   6.3    3.0
  W       1   6.3
  1   6.3    3.0
 NW       1   6.3       1   6.3
  2  12.5    3.0
  N       2  12.5       1   6.3
  3  18.8    3.3
CLM       1   6.3
  1   6.3    0.0
-------------------------------------------------------------------------------
-----------------
TOT     10  62.5       6  37.5
 16 100.0    3.1
```

5-Day Period Beginning 8/1

```
                                          Wind Speed, MPH
          0 - 3        4 - 7        8 - 12       13 - 18      19 - 24       >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------
-----------------
 NE       1   9.1       1   9.1
  2  18.2    3.5
  E

 SE       2  18.2
  2  18.2    3.0
  S       3  27.3       1   9.1
  4  36.4    3.0
```

SW

W

NW 2 18.2
2 18.2 2.0
N 1 9.1
1 9.1 4.0
CLM

TOT 8 72.7 3 27.3
11 100.0 3.0

5-Day Period Beginning 8/6

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	
NE	1	6.7												
1	6.7	3.0												
E	1	6.7												
1	6.7	3.0												
SE														
S	6	40.0		1	6.7									
7	46.7	3.3												
SW				1	6.7									
1	6.7	4.0												
W														
NW	1	6.7		1	6.7									
2	13.3	3.0												
N	2	13.3				1	6.7							
3	20.0	4.3												
CLM														
TOT	11	73.3		3	20.0	1	6.7							
15	100.0	3.5												

5-Day Period Beginning 8/11

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	
NE	2	20.0												
2	20.0	1.5												
E														
SE														
S				3	30.0									
3	30.0	4.7												
SW														

```
  W

 NW       1  10.0
  1  10.0    3.0
  N       1  10.0       2  20.0
  3  30.0    3.7
CLM       1  10.0
  1  10.0    0.0
-------------------------------------------------------------------------------
-----------------
TOT       5  50.0       5  50.0
 10 100.0    3.1

5-Day Period Beginning 8/16
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N   PCT       N    PCT      N    PCT      N    PCT      N    PCT      N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------
------------------
 NE       1  10.0
  1  10.0    2.0
  E

 SE       1  10.0
  1  10.0    3.0
  S                     4  40.0
  4  40.0    5.5
 SW       1  10.0
  1  10.0    2.0
  W       1  10.0
  1  10.0    3.0
 NW

  N       1  10.0       1  10.0
  2  20.0    3.5
CLM

-------------------------------------------------------------------------------
-----------------
TOT       5  50.0       5  50.0
 10 100.0    3.9

5-Day Period Beginning 8/21
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N   PCT       N    PCT      N    PCT      N    PCT      N    PCT      N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------
------------------
 NE

  E

 SE       1  10.0
  1  10.0    1.0
  S       1  10.0
  1  10.0    3.0
 SW
```

```
  W

 NW       4  40.0
  4  40.0    2.3
  N        2  20.0        2  20.0
  4  40.0    3.3
CLM

--------------------------------------------------------------------------------
-----------------
TOT        8  80.0        2  20.0
 10 100.0    2.6
```

5-Day Period Beginning 8/26

			Wind Speed, MPH									
		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24
Dir	TOTAL N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
N	PCT	SPEED										
NE												
E												
SE	3	25.0										
3	25.0	2.0										
S	1	8.3	1	8.3								
2	16.7	3.0										
SW	2	16.7										
2	16.7	2.5										
W												
NW	1	8.3	1	8.3								
2	16.7	4.0										
N	2	16.7	1	8.3								
3	25.0	3.3										
CLM												
TOT	9	75.0	3	25.0								
12	100.0	2.9										

5-Day Period Beginning 9/1

			Wind Speed, MPH									
		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24
Dir	TOTAL N	AVG PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
N	PCT	SPEED										
NE	2	20.0										
2	20.0	1.5										
E												
SE	3	30.0										
3	30.0	2.0										
S	1	10.0	1	10.0								
2	20.0	3.5										
SW	1	10.0										
1	10.0	3.0										
W												

```
 NW       1  10.0
  1  10.0    2.0
  N       1  10.0
  1  10.0    2.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT       9  90.0       1  10.0
 10 100.0    2.3
```

5-Day Period Beginning 9/6

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE	1	10.0				1	10.0						
	2	20.0	4.5										
E	1	10.0											
	1	10.0	1.0										
SE	2	20.0		1	10.0								
	3	30.0	2.7										
S	2	20.0											
	2	20.0	2.0										
SW													
W													
NW													
N	1	10.0		1	10.0								
	2	20.0	3.5										
CLM													
TOT	7	70.0		2	20.0	1	10.0						
	10	100.0	2.9										

5-Day Period Beginning 9/11

			Wind Speed, MPH									
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	AVG SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE	3	30.0		1	10.0								
	4	40.0	3.3										
E	1	10.0											
	1	10.0	2.0										
SE	1	10.0											
	1	10.0	3.0										
S													
SW													
W													

```
 NW       1  10.0       1  10.0
  2  20.0     3.5
  N       2  20.0
  2  20.0     2.5
CLM

--------------------------------------------------------------------------------
-----------------
TOT       8  80.0       2  20.0
 10 100.0     3.0

5-Day Period Beginning 9/16
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT      N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
--------------------------------------------------------------------------------
-----------------
 NE       2  20.0
  2  20.0     2.0
  E

 SE       1  10.0
  1  10.0     3.0
  S                      1  10.0
  1  10.0     4.0
 SW       1  10.0
  1  10.0     3.0
  W       1  10.0
  1  10.0     2.0
 NW       1  10.0
  1  10.0     3.0
  N       1  10.0       2  20.0
  3  30.0     4.3
CLM

--------------------------------------------------------------------------------
-----------------
TOT       7  70.0       3  30.0
 10 100.0     3.2

5-Day Period Beginning 9/21
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT      N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
--------------------------------------------------------------------------------
-----------------
 NE

  E       1  10.0
  1  10.0     2.0
 SE

  S       2  20.0       1  10.0
  3  30.0     3.3
 SW

  W

 NW       1  10.0       1  10.0
```

```
  2  20.0     3.5
  N       3  30.0       1  10.0
  4  40.0     2.8
CLM

-------------------------------------------------------------------------------
-----------------
TOT       7  70.0       3  30.0
 10 100.0     3.0
```

5-Day Period Beginning 9/26

		Wind Speed, MPH									
	TOTAL	AVG	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	
NE														
	1	10.0	2.0											
SE														
	1	10.0	1.0											
SW														
W														
NW														
	1	10.0	4.8			7	70.0							
	8	80.0												
CLM														
TOT	3	30.0	4.1			7	70.0							
	10	100.0												

5-Day Period Beginning 10/1

		Wind Speed, MPH									
	TOTAL	AVG	0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	PCT	SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	
NE														
E														
SE														
S						3	30.0							
	3	30.0	4.0											
SW	1	10.0	3.0											
W														
NW	2	20.0	2.7			1	10.0							
	3	30.0												

```
  N       1  10.0       2  20.0
  3  30.0    4.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT       4  40.0       6  60.0
 10 100.0    3.5
```

5-Day Period Beginning 10/6

Dir	TOTAL N	PCT	AVG SPEED	Wind Speed, MPH 0 - 3 N	PCT	4 - 7 N	PCT	8 - 12 N	PCT	13 - 18 N	PCT	19 - 24 N	PCT	>24 N	PCT
NE	1	10.0	3.0												
E	1	10.0	3.0												
SE	1	10.0	5.0			1	10.0								
S	1	10.0	6.0			1	10.0								
SW	1	10.0	3.0												
W															
NW	1	10.0	6.0			1	10.0								
N	4	40.0	6.3			3	30.0	1	10.0						
CLM															
TOT	10	100.0	5.1			6	60.0	1	10.0						

5-Day Period Beginning 10/11

Dir	TOTAL N	PCT	AVG SPEED	Wind Speed, MPH 0 - 3 N	PCT	4 - 7 N	PCT	8 - 12 N	PCT	13 - 18 N	PCT	19 - 24 N	PCT	>24 N	PCT
NE															
E															
SE	1	10.0	2.5			1	10.0								
S	1	10.0	3.5			1	10.0								
SW															
W															
NW	2	20.0	3.0												
N	3	30.0				1	10.0								

```
  4  40.0     3.5
CLM

-------------------------------------------------------------------------------
-----------------
TOT       7  70.0       3  30.0
 10 100.0     3.2

5-Day Period Beginning 10/16
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT      N    PCT       N    PCT      N    PCT       N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------
------------------
 NE       2  20.0
  2  20.0     2.5
  E        2  20.0
  2  20.0     2.0
 SE        1  10.0
  1  10.0     2.0
  S

 SW                        1  10.0
  1  10.0     4.0
  W                        1  10.0
  1  10.0     4.0
 NW                        2  20.0
  2  20.0     4.5
  N        1  10.0
  1  10.0     3.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT       6  60.0       4  40.0
 10 100.0     3.1

5-Day Period Beginning 10/21
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT      N    PCT       N    PCT      N    PCT       N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------
------------------
 NE       1  10.0       1  10.0
  2  20.0     3.5
  E        2  20.0
  2  20.0     2.5
 SE        1  10.0
  1  10.0     2.0
  S

 SW        1  10.0       1  10.0
  2  20.0     3.0
  W

 NW        1  10.0                  1  10.0
  2  20.0     5.5
  N                        1  10.0
  1  10.0     4.0
```

CLM

TOT 6 60.0 3 30.0 1 10.0
10 100.0 3.5

5-Day Period Beginning 10/26

Dir	TOTAL N	TOTAL PCT	AVG SPEED	Wind Speed, MPH 0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE						1	8.3								
	1	8.3	4.0												
E															
SE															
S															
SW															
W	1	8.3													
	1	8.3	2.0												
NW	2	16.7				3	25.0	1	8.3						
	6	50.0	4.8												
N						4	33.3								
	4	33.3	5.0												
CLM															

TOT 3 25.0 8 66.7 1 8.3
12 100.0 4.6

5-Day Period Beginning 11/1

Dir	TOTAL N	TOTAL PCT	AVG SPEED	Wind Speed, MPH 0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE						1	10.0								
	1	10.0	5.0												
E	1	10.0													
	1	10.0	2.0												
SE															
S						1	10.0								
	1	10.0	4.0												
SW															
W	1	10.0													
	1	10.0	2.0												
NW															
N	2	20.0				3	30.0								
	5	50.0	3.6												
CLM	1	10.0													

```
  1  10.0    0.0
-------------------------------------------------------------------------------
-----------------
TOT      5  50.0      5  50.0
 10 100.0    3.1

5-Day Period Beginning 11/6
                                                Wind Speed, MPH
          0 - 3        4 - 7        8 - 12       13 - 18      19 - 24       >24
   TOTAL     AVG
Dir      N   PCT      N   PCT      N   PCT      N   PCT      N   PCT      N   PCT
  N   PCT   SPEED
-------------------------------------------------------------------------------
-----------------
 NE                    1  10.0
  1  10.0    4.0
  E

 SE

  S       1  10.0      1  10.0      1  10.0
  3  30.0    5.0
 SW

  W       1  10.0
  1  10.0    3.0
 NW       2  20.0      2  20.0
  4  40.0    3.8
  N                    1  10.0
  1  10.0    6.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT      4  40.0      5  50.0      1  10.0
 10 100.0    4.3

5-Day Period Beginning 11/11
                                                Wind Speed, MPH
          0 - 3        4 - 7        8 - 12       13 - 18      19 - 24       >24
   TOTAL     AVG
Dir      N   PCT      N   PCT      N   PCT      N   PCT      N   PCT      N   PCT
  N   PCT   SPEED
-------------------------------------------------------------------------------
-----------------
 NE                    1  10.0
  1  10.0    4.0
  E       1  10.0
  1  10.0    3.0
 SE

  S

 SW

  W

 NW       2  20.0      3  30.0
  5  50.0    4.0
  N                    3  30.0
  3  30.0    4.7
CLM
```

```
-------------------------------------------------------------------------------
-----------------
TOT      3  30.0       7  70.0
 10 100.0    4.1

5-Day Period Beginning 11/16
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24        >24
   TOTAL      AVG
Dir      N    PCT       N    PCT      N    PCT      N    PCT      N    PCT      N    PCT
  N   PCT   SPEED
-------------------------------------------------------------------------------
------------------
 NE       1  10.0       2  20.0
  3  30.0    4.0
  E

 SE

  S       1  10.0
  1  10.0    2.0
 SW       1  10.0
  1  10.0    3.0
  W

 NW       2  20.0       1  10.0
  3  30.0    3.3
  N                     2  20.0
  2  20.0    4.0
CLM

-------------------------------------------------------------------------------
-----------------
TOT      5  50.0       5  50.0
 10 100.0    3.5

5-Day Period Beginning 11/21
                                          Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24        >24
   TOTAL      AVG
Dir      N    PCT       N    PCT      N    PCT      N    PCT      N    PCT      N    PCT
  N   PCT   SPEED
-------------------------------------------------------------------------------
------------------
 NE       1  10.0
  1  10.0    1.0
  E

 SE       1  10.0       1  10.0
  2  20.0    3.5
  S                     1  10.0
  1  10.0    5.0
 SW

  W

 NW                     2  20.0
  2  20.0    6.5
  N       2  20.0       1  10.0
  3  30.0    3.7
CLM       1  10.0
  1  10.0    0.0
-------------------------------------------------------------------------------
```

```
-----------------
TOT      5  50.0       5  50.0
 10 100.0    3.7

5-Day Period Beginning 11/26
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------------------
------------------
 NE

  E

 SE

  S       2  20.0       1  10.0       1  10.0
  4  40.0     4.5
 SW       2  20.0
  2  20.0     2.5
  W       1  10.0
  1  10.0     2.0
 NW       1  10.0       1  10.0
  2  20.0     3.5
  N                     1  10.0
  1  10.0     6.0
CLM

-------------------------------------------------------------------------------------------
-----------------
TOT      6  60.0       3  30.0       1  10.0
 10 100.0    3.8

5-Day Period Beginning 12/1
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12       13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT    SPEED
-------------------------------------------------------------------------------------------
------------------
 NE       1  10.0
  1  10.0     3.0
  E       1  10.0
  1  10.0     2.0
 SE       1  10.0
  1  10.0     3.0
  S                     1  10.0
  1  10.0     4.0
 SW

  W

 NW       1  10.0
  1  10.0     3.0
  N       1  10.0       3  30.0
  4  40.0     4.3
CLM       1  10.0
  1  10.0     0.0
-------------------------------------------------------------------------------------------
-----------------
```

```
TOT      6  60.0       4  40.0
 10 100.0    3.2

5-Day Period Beginning 12/6
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT      N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------------------
------------------
 NE                      2  20.0
  2  20.0     4.5
  E       1  10.0
  1  10.0     3.0
 SE       1  10.0
  1  10.0     2.0
  S       1  10.0       1  10.0
  2  20.0     4.5
 SW

  W       1  10.0
  1  10.0     3.0
 NW       1  10.0       1  10.0
  2  20.0     3.0
  N       1  10.0
  1  10.0     3.0
CLM

-------------------------------------------------------------------------------------------
-----------------
TOT      6  60.0       4  40.0
 10 100.0    3.5

5-Day Period Beginning 12/11
                                                Wind Speed, MPH
          0 - 3         4 - 7         8 - 12        13 - 18       19 - 24        >24
   TOTAL      AVG
Dir       N    PCT       N    PCT      N    PCT       N    PCT       N    PCT       N    PCT
  N    PCT   SPEED
-------------------------------------------------------------------------------------------
------------------
 NE                      2  20.0
  2  20.0     4.0
  E       1  10.0
  1  10.0     1.0
 SE

  S       4  40.0
  4  40.0     2.3
 SW

  W

 NW                      1  10.0
  1  10.0     6.0
  N                      2  20.0
  2  20.0     5.0
CLM

-------------------------------------------------------------------------------------------
-----------------
TOT      5  50.0       5  50.0
```

10 100.0 3.4

5-Day Period Beginning 12/16

Dir	TOTAL N	TOTAL PCT	AVG SPEED	Wind Speed, MPH 0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE															
E															
SE															
S	2	20.0	5.5			2	20.0								
SW	2	20.0	2.0			1	10.0								
W	1	10.0	6.0					2	20.0						
NW	2	20.0	8.5			2	20.0								
N	2	20.0	4.5												
CLM	1	10.0	0.0												
TOT	10	100.0	4.7	3	30.0	5	50.0	2	20.0						

5-Day Period Beginning 12/21

Dir	TOTAL N	TOTAL PCT	AVG SPEED	Wind Speed, MPH 0 - 3 N	0 - 3 PCT	4 - 7 N	4 - 7 PCT	8 - 12 N	8 - 12 PCT	13 - 18 N	13 - 18 PCT	19 - 24 N	19 - 24 PCT	>24 N	>24 PCT
NE	2	20.0	3.0			1	10.0								
E	3	30.0	6.0												
SE															
S	1	10.0	5.3			1	10.0								
SW															
W															
NW	4	40.0	3.5			4	40.0								
N	1	10.0	4.3			1	10.0								
CLM	2	20.0	0.0												
TOT	10	100.0	4.3	3	30.0	7	70.0								

5-Day Period Beginning 12/26

			Wind Speed, MPH											
	TOTAL		0 - 3		4 - 7		8 - 12		13 - 18		19 - 24		>24	
Dir	N	AVG PCT SPEED	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
NE	2	20.0			1	10.0								
	3	30.0												
E														
SE														
S	1	10.0			1	10.0								
	2	20.0												
SW														
W	1	10.0												
	1	10.0												
NW	1	10.0			2	20.0								
	3	30.0												
N	1	10.0												
	1	10.0												
CLM														
TOT	6	60.0			4	40.0								
	10	100.0												

908 records used.

Deliverables

1. Assemble existing data on fuels in shrub-scrub, pocosin, and pond pine ecosystems.

Status: COMPLETED (October 2000)

2. Determine the adequacy of existing fuels data for developing custom fuel models.

Status: COMPLETED (November 2001)

3. Assemble historical weather data for Dare County, NC and Green Swamp, NC.

Status: COMPLETED (August 2002)

4. Use fuel and weather data and fire models to develop preliminary prescriptions for burning in shrub-scrub types.

Status: COMPLETED (February 2002)

5. Assist with and monitor prescribed fires on the Green Swamp and Dare County Bomb Range.

Status: COMPLETED (Feb. and Sept. 2001)

Prescribed Fire Parameters

The following is a brief list of *preliminary* burning prescriptions in pocosin and PPW ecosystems. It is an attempt to document previous field and research findings and present them in a useful manner. The data was developed based on guidelines for burning in southern forests (USDA 1989) (G*), lab results on organic soil combustion (L*), and previous prescribed fires on DCBR, ARNWR, and the Green Swamp (PF*). However further field and laboratory testing is required to validate and refine these thresholds. Moreover most data comes from burning in PPW or pocosin; more research and prescribed fires are needed to develop specific parameters for varying vegetation and environmental/topographic conditions.

Weather	**Guideline**	**Source***
Temperature	35-85°F	PF/G
Relative Humidity	25-70%	PF/G
In-stand Mid-flame Wind	1-6 mph	PF
20-ft Wind	5-20 mph	PF/G
Cloud Cover	0-100%	G
General Pattern	No approaching cold fronts	G
Fuel		
Surface Litter	>7%	G/PF
10-hr Fuel Moisture (FM)	>10%	PF
100-hr FM	>15%	PF
Live Herbacious FM	?	--
Live Woody FM	>80-110% (consumption)	L/PF
Hummock (Top of Root Mat)	>170-190%	L/PF
Sapric Muck	>250-300%	L/PF
Indices		
BI	<75	PF
ERC	<40	PF
KBDI	<270	PF

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Status: COMPLETED (Feb. and Sept. 2001)

Prescribed Fire	Date
Juniper Block	Feb. 9, 2001
Green Swamp	Sept. 28, 2001